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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
ELENA BENCINI, ET AL.	: EXAMINER: SINGH, P. C.
SERIAL NO: 10/538,641	:
FILED: NOVEMBER 9, 2005	: GROUP ART UNIT: 1797
FOR: CATALYTIC COMPOSITION AND PROCESS FOR THE TRANSALKYLATION OF AROMATIC HYDROCARBONS	:

DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Now comes Gianni Girotti who deposes and states that:

1. I received my degree in Industrial Chemistry in the year 1990.

2. I have been employed by the Eni Group since 1990, and I have been conducting research in the field of catalyst technology for 13 years.

3. I have reviewed and understood the contents of the Girotti reference (EP 0847802) cited by the Examiner as evidence that the claims of the present application are obvious and I have read and understood the Office Action in U.S. Application No. 10/538,641 dated June 18, 2008, or the Office Action of June 18, 2008 has been explained to me by counsel. I have read and understood the specification and presently pending claims of the present application (i.e., 10/538,641).

4. In order to demonstrate that the presently claimed catalytic composition is not obvious, the following experiments were carried out by me or under my direct supervision

and control to demonstrate the improved crush strength and transalkylation performance of the catalytic composition of the present claims.

5. The purpose of carrying out the examples described herein is to provide a side-by-side comparison of the closest prior art, Girotti, with the catalytic composition of the present claims.

6. Additional Comparative Examples Z (i.e., closest to the Girotti disclosure).

It has been carried out a first catalytic test in the reaction of transalkylation of polyethylbenzenes with benzene in the same reactor and with the same method used in example 2 of the present invention and under the same operative conditions, i.e. 210°C reaction temperature, 50 bar reaction pressure, benzene/polyethylbenzenes molar ratio equal to 20, space velocity expressed as WHSV equal to $4h^{-1}$.

The catalyst used was a beta zeolite-based catalyst, herewith named as Catalyst Z of Girotti and having the characteristics:

CAT. Z = extrazeolitic volume 0.81 cc/g
Crushing strength 10.5 Kg/cm
Porosity with radius higher than 100 Å: 53%
Porosity with radius higher than 500 Å: 3.3%

After some hours of test a first sampling was made and, based on a GC analysis, the conversion of polyethylbenzenes was as low as about 5 %, which is very low from an industrial point of view. The test was then stopped as the conversion was really too low to continue with the test and eventually with another sampling.

A second test was then carried out at the same conditions than the previous one, except for temperature which was increased to 270 °C.

When a productivity of about 20 g of ethylbenzene per g of catalyst was reached, the conversion of polyethylbenzenes was equal to 56.3%, while when a productivity of 150 g of ethylbenzene per g of catalyst was reached, the conversion dropped to 47.8%.

With the zeolite beta based Catalyst Z of Girotti, a temperature of 60° C higher than that used for the present inventive catalytic composite is necessary to effectively carry out a transalkylation reaction. Even at this higher temperature the conversion is greatly reduced compared to the example 2 of the present invention , and furthermore a very high deactivation rate is observed.

7. It is my opinion that one of ordinary skill in the art would understand that the comparison provided above shows that the catalytic composition of the present claims is significantly and unexpectedly superior to the Girotti catalyst with respect to both performance in transalkylation reaction to ethylbenzene and the mechanical property crushing strength.

8. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

9. Further deponent saith not.

Signature

Date 21/04/05

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